

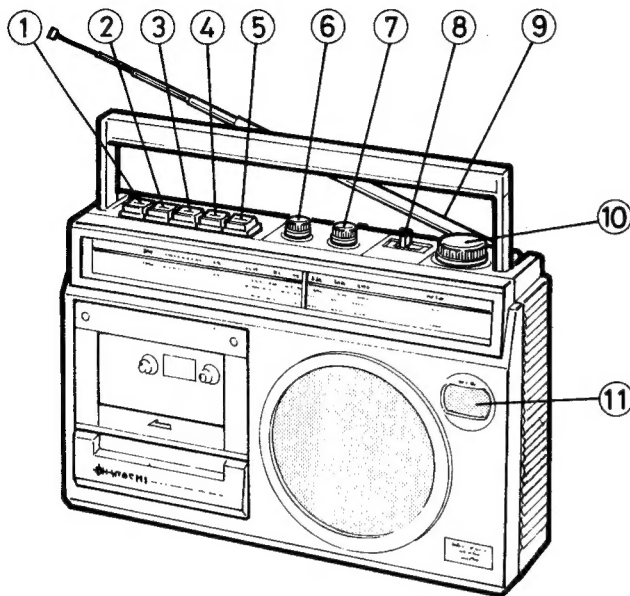
HITACHI

SERVICE MANUAL

TK
No. 1747E

811

TRK-5351E



KEY TO ILLUSTRATIONS

- ① STOP/EJECT BUTTON
- ② FAST FORWARD BUTTON
- ③ REWIND BUTTON
- ④ PLAYBACK BUTTON
- ⑤ RECORD BUTTON
- ⑥ VOLUME CONTROL
- ⑦ TONE CONTROL
- ⑧ FUNCTION/BAND SELECTOR
- ⑨ TELESCOPIC ANTENNA (AERIAL)
- ⑩ TUNING CONTROL
- ⑪ BUILT IN MICROPHONE

SPECIFICATIONS

GENERAL SECTION

Semi-conductors:	IC: 1 Transistors: 6 Diodes: 11 Zener diode: 1
Power (Mains) Supply:	AC: 220V, 50 Hz DC: 6V (IEC R20 x 4 or equivalent)
Power (Mains) Consumption:	6W
Dimensions:	205(H) x 306(W) x 113(D)mm
Weight:	2.2 kg (with batteries)
Power output:	1.5W M.P.O. (AC operation)
Speaker:	100mm, 4 ohms

TUNER SECTION

Circuit System:	FM/SW/MW superheterodyne
Tuning Range:	FM : 87.5 to 108 MHz SW : 6 to 18 MHz MW : 530 to 1605 kHz
Sensitivity:	FM : 12 dB (pra.), 6 dB (max.) SW : 46 dB (pra.), 40 dB (max.) MW : 48 dB (pra.), 40 dB (max.)

Intermediate Frequency:	FM: 10.7 MHz SW/MW: 465 kHz
Antennas (aerials)	FM: Telescopic antenna SW/MW: Built-in Ferrite-core antenn.

TAPE RECORDER

Tape :	Cassette tape (C-30, 60, 90)
Tape Speed :	4.75 cm/s
Recording System:	DC bias
Erasing System :	DC erase
Track System :	Monoaural dual track
Frequency Response :	100Hz to 8 kHz
S/N (Signal to Noise Ratio) :	35 dB
Wow and Flutter :	0.25% (WRMS)
Cross Talk :	65 dB
Erase Ratio :	50 dB
Input Sensitivity and Impedance:	Microphone: 1.4mV, 1k ohms
Output Impedance:	Earphone: 4 — 8 ohms
Fast Forward or Rewinding	
Time:	110 sec (Using C-60)
Distortion:	5%
Motor:	DC Micro motor

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

CASSETTE TAPE RECORDER WITH FM/SW/MW RADIO

July 1982
TOKAI WORKS

811

SAFETY PRECAUTION

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety related characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makes. Critical parts are marked with \triangle in the schematic diagram and circuit board diagram.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

DISASSEMBLY

1. Cassette lid

Push the tab with screwdriver in the direction of arrow and pull the cassette lid out.

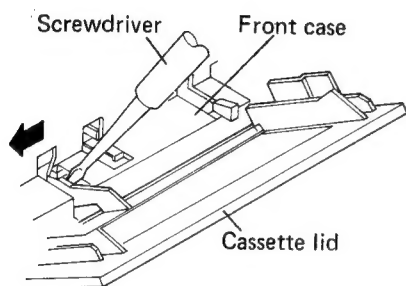
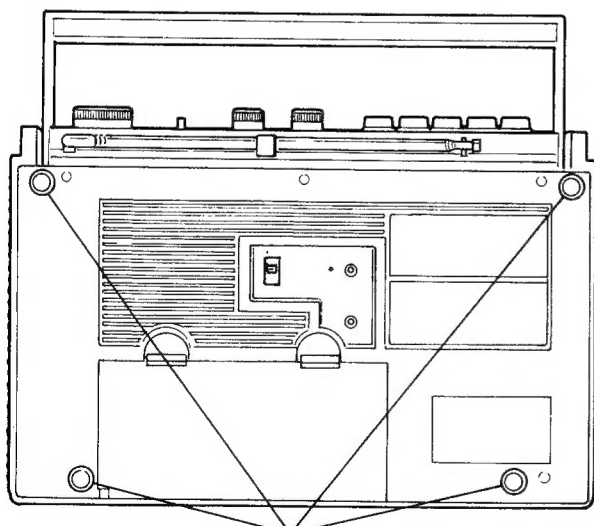


Fig. 1

2. Rear case

After removing the tuning, volume and tone knobs, remove four screws.

Then remove the rear case by pulling bottom side up.



B3x20 (BT)

Fig. 2

3. Main P.C. Board

Remove three screws.

4. Power P.C. Board

Remove two screws.

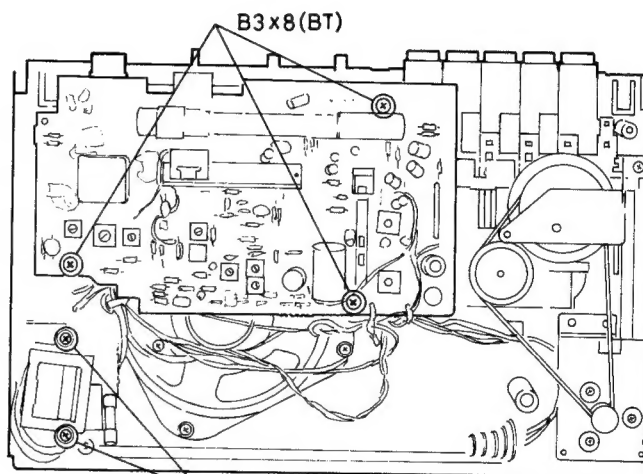


Fig. 3

5. Mechanism

After removing the main P.C. Board, remove three screws.

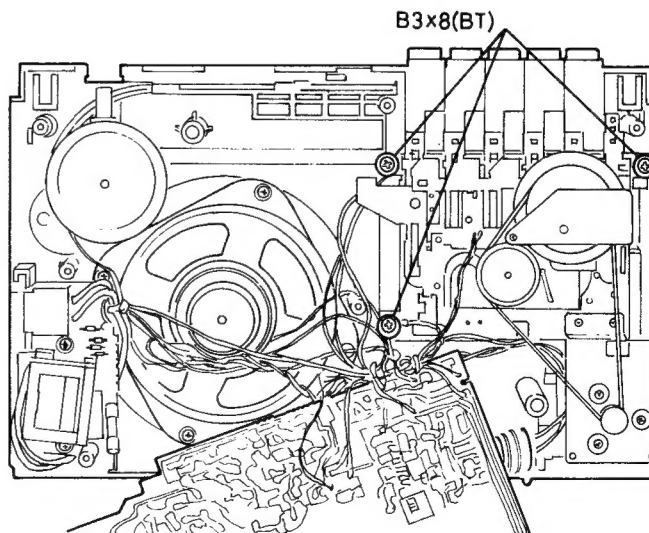


Fig. 4

ADJUSTMENT

1. Tuner Section

Step	Adjustment Item	Measuring Instrument and Connection			Genescope or Signal Generator Frequency	Dial Pointer Position	Adjust	Reading	
		Measuring Instrument	Input Terminal	Output Terminal					
1	(1)	FM IF	Turn T202 fully counterclockwise						
	(2)	S-Curve	● Genescope (10.7 MHz)	TP101 (L103)	TP201 (R211)	10.7 MHz	Highest	T101 T201	Note 1
		T202						Note 2	
2	(1)	FM OSC. (Covering)	● FM signal generator (400 Hz 30% mod.) ● Oscilloscope ● VTVM	TP101 (thru FM dummy antenna) (Note 3)	TP201 (R211)	87 MHz	Lowest	L104	Max.
	(2)					109 MHz	Highest	CT102	
	(3)					Repeat steps (1) and (2)			
3	(1)	FM ANT (Tracking)				90 MHz	90 MHz	L102	Max.
	(2)					106 MHz	106 MHz	CT101	
	(3)					Repeat steps (1) and (2)			
4	(1)	AM IF	● Genescope (465 kHz)	Ferrite-core antenna (Note 4)	TP202 (R212)	465 kHz	Highest	T151 T203 T204	Note 5
	(2)					Repeat step (1)			
5	(1)	SW OSC. (Covering)	● AM signal generator (400 Hz 30% mod.) ● VTVM	Ferrite-core antenna (Note 4)	TP202 (R212)	5.8 MHz	Lowest	L153	Max.
	(2)					18.5 MHz	Highest	CT152	
	(3)					Repeat steps (1) and (2)			
6	(1)	SW ANT. (Tracking)				6.5 MHz	6.5 MHz	L151	Max.
	(2)					16 MHz	16 MHz	CT151	
	(3)					Repeat steps (1) and (2)			
7	(1)	MW OSC. (Covering)	● AM signal generator (400 Hz 30% mod.) ● VTVM	Ferrite-core antenna (Note 4)	TP202 (R212)	515 kHz	Lowest	L154	Max.
	(2)					1650 kHz	Highest	CT154	
	(3)					Repeat steps (1) and (2)			
8	(1)	MW ANT. (Tracking)				600 kHz	600 kHz	L152	Max.
	(2)					1400 kHz	1400 kHz	CT153	
	(3)					Repeat steps (1) and (2)			

Note:

1. Feed in a weak signal to TP102 from the genescope. Adjust T101 and T201 for maximum gain and the waveform indicated in Figure 5. If the center of the waveform cannot be lined up on the marker, adjust the right/left balance.

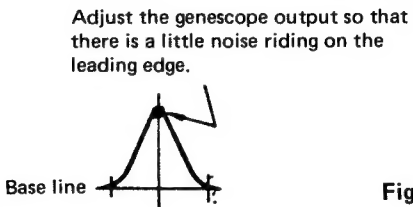


Fig. 5

2. Use the T202 core to form the S-curve shown in Figure 6. Adjust the symmetry of A and B about point C for linearity.

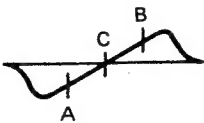


Fig. 6

3. FM dummy antenna shows Figure 7.

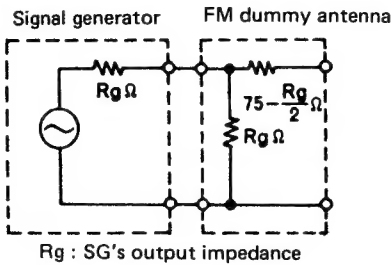


Fig. 7

4. Connect AM signal generator to loop antenna, bring near to ferrite antenna.
5. Feed in a weak signal from the genescope. Adjust T151, T203 and T204 for maximum gain and the waveform of Figure 8.

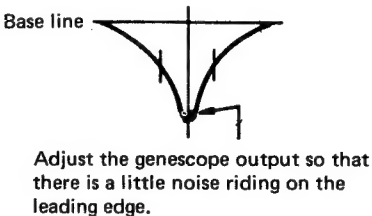


Fig. 8

2. Tape Recorder Section

Perform the following adjustment after cleaning the head, pressure roller, and capstan with a head cleaning stick moistened in alcohol.

Item	Adjustments	Measuring instrument & connection			Check tape	Mode	Adjust	Reading
		Measuring instrument	Input terminal	Output terminal				
1	Head azimuth	• VTVM	—	Speaker terminal (4Ω load)	Azimuth adjustment tape (10kHz)	PLAY	Azimuth adjusting screw	Output Max.

LUBRICATION

Lubricate one or two drops of oil to rotating point or lubricate grease to sliding point. Lubricate the respective parts listed once every 1000 hours or once a year under normal conditions of use. Avoid oiling them excessively, or rotation may become irregular because of oil splashes.

Lubrication		Oil or Grease
Spring resonance prevention		Floil (GB-TS-1)
Rotary section	Metal and metal	Pan motor oil (10W-40)
	Mold and metal	Sonic slider oil (#1600)
Sliding section	Metal and metal	Hitasol (MO-138)
	Mold and mold Mold and metal	White grease (FL-LUBE-A)

INSPECTION OF MECHANISM

Mode	Item	Pressure or Torque
Playback	Pressure of pressure roller	300 ~ 500 gr
	Take-up torque	40 ~ 70 gr-cm
	Supply reel back tension	1 ~ 4 gr-cm
Rewind	Rewind torque	65 ~ 140 gr-cm
Fast forward	Fast forward torque	65 ~ 140 gr-cm

SCHEMATIC DIAGRAM

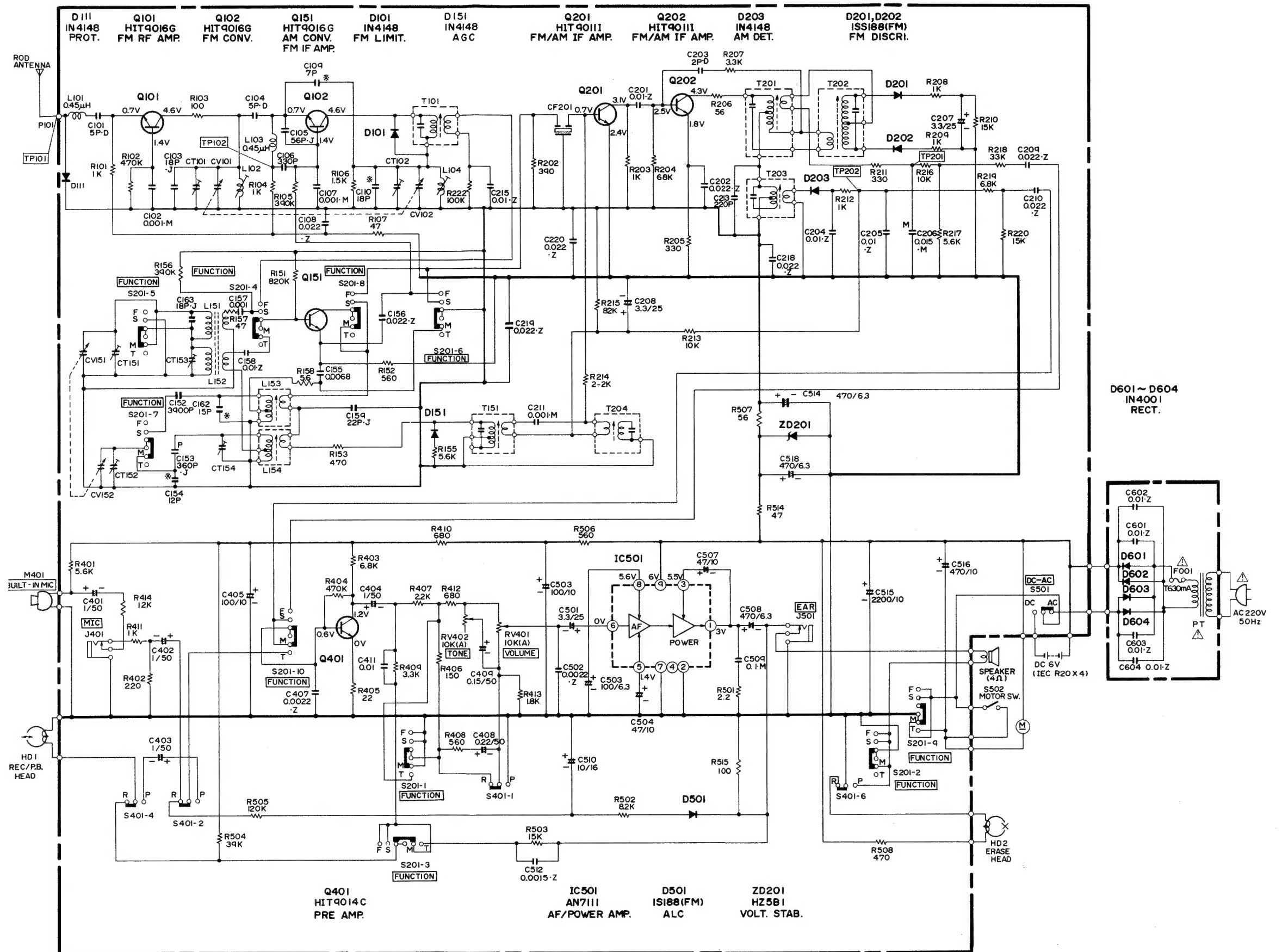
Note

1. Voltage measured at base of chassis with minimum volume control and no signal.
2. Nomenclature of Resistors and Capacitors.

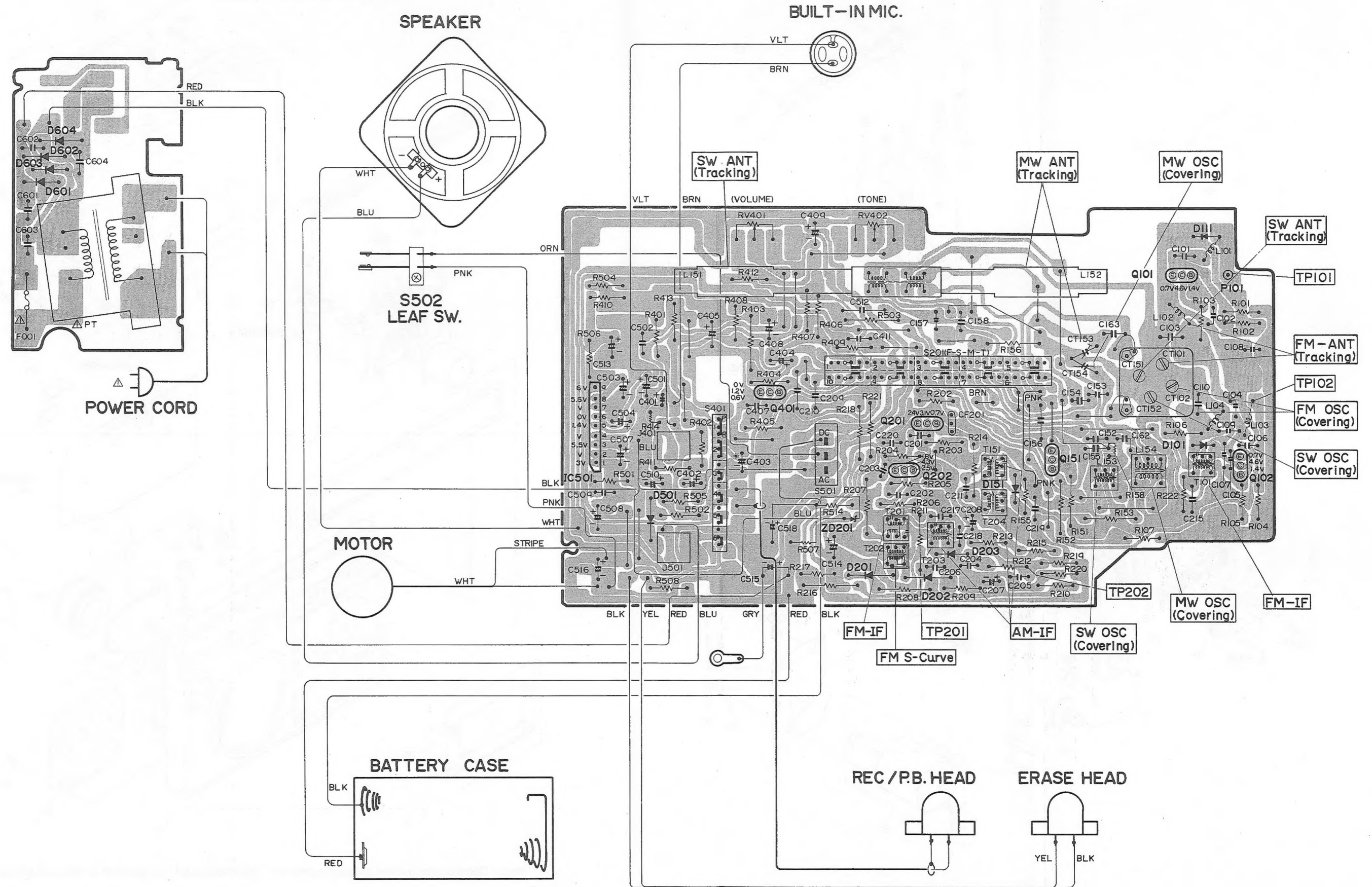
Circuit No.	
Value	No indicated Ω (Ohm) M: 1000k Ω
Tolerance	No indicated $\pm 5\%$ K: $\pm 10\%$ M: $\pm 20\%$
Wattage	No indicated $\frac{1}{4}W$
Sort	No indicated Carbon film RC: Composition RW: Wire wound RS: Oxide metal film RN: Fixed metal film

Circuit No.	
Value	No indicated μF P: PF
Tolerance	No indicated $\pm 10\%$ J: $\pm 5\%$ M: $\pm 20\%$ Z: $\pm 80\%$ D: $\pm 0.5pF$ C: $\pm 0.25pF$
Sort	Ceramic Electrolytic Mylar Polyester Styrol
Voltage	No indicated 50WV

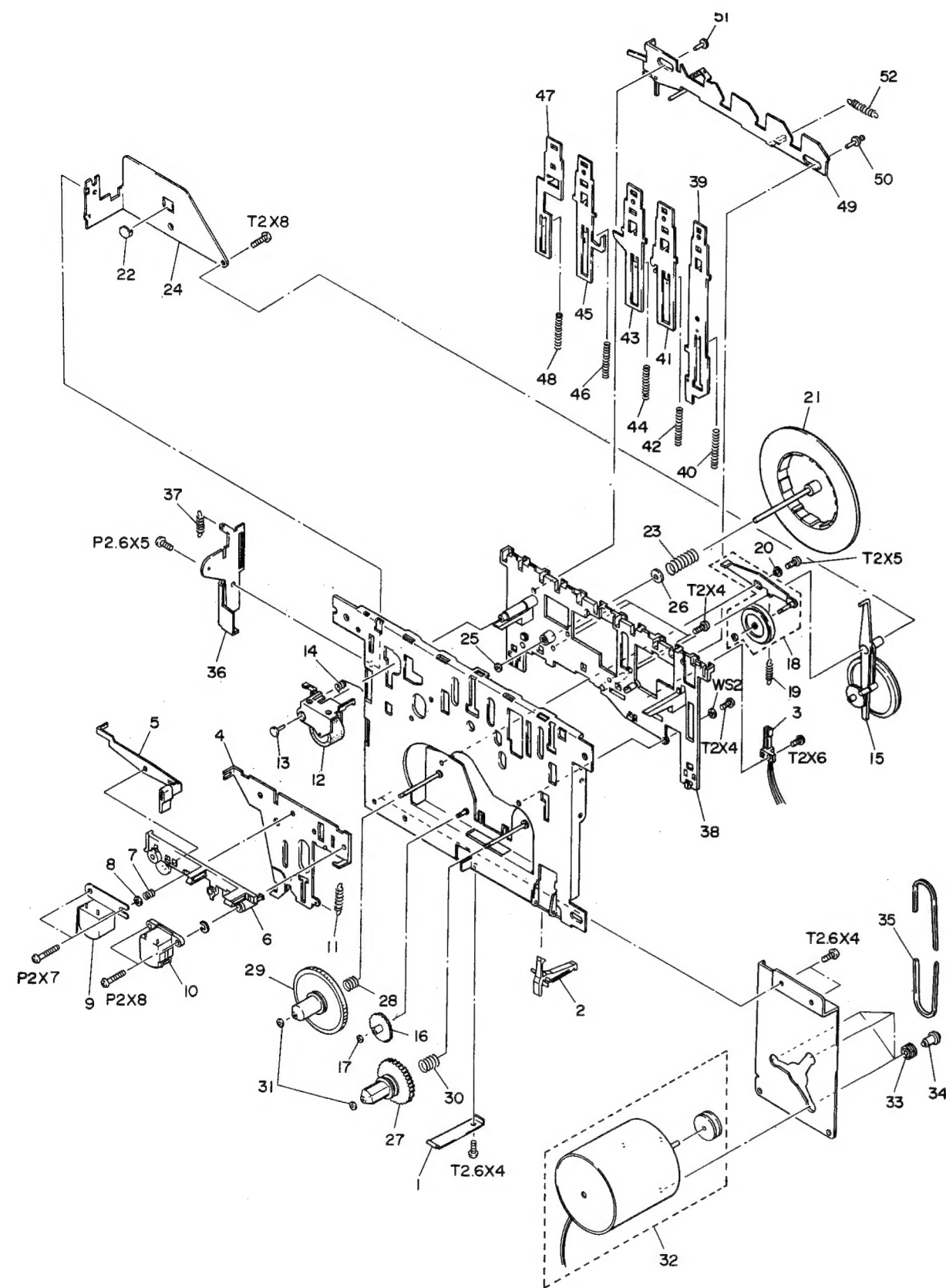
3. Be sure to make your orders of resistors and capacitors with value, voltage, tolerance and sort.
4. When replacing capacitors marked with *, use specified ones stated on parts list since required temperature characteristics.



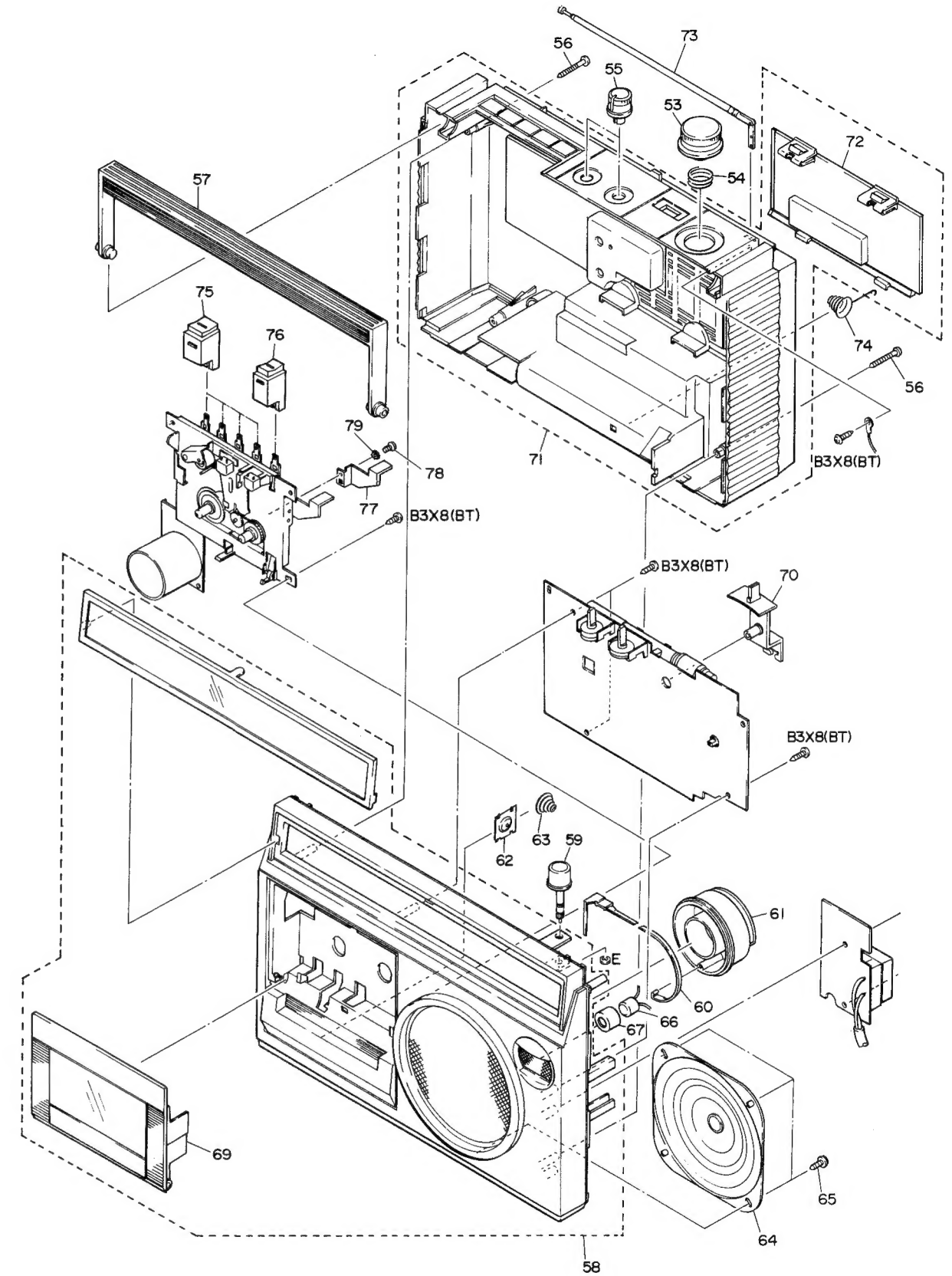
CIRCUIT BOARD DIAGRAM



EXPLODED VIEW (Mechanism TN-33ZV)



EXPLODED VIEW (Cabinet)

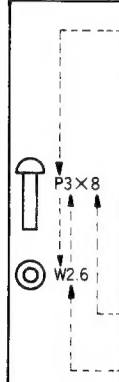








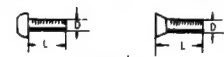



Note: Components marked without numbers in this drawing are not specified as replacement parts.

REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
CAPACITORS			COILS		
CT101-102	5052681	VARIABLE	L101	5127084	CHOKE
CT151-152	5052681	VARIABLE	L102	5127083	FM RF
CT153-154	0283557	TRIMMER 8PF	L103	5127084	CHOKE
CV101-102	5052681	VARIABLE	L104	5127082	FM OSCILLATOR
CV151-152	5052681	VARIABLE	L151-152	5115011	FERRITE ANTENNA
C109	0246426	CERAMIC DISC 6PF+-0.5PF	L153	5123676	SW OSCILLATOR
C110	0246446	CERAMIC DISC 18PF+-10% NP=0	L154	5120683	MW OSCILLATOR
C154	0246442	CERAMIC DISC 12PF 5% 0C50WV	MISCELLANEOUS		
C162	0246444	CERAMIC DISC 15PF+-5X			
RESISTORS					
RV401	5001141	VARIABLE 10KOHM(A) (VOLUME)			
RV402	5001141	VARIABLE 10KOHM(A) (TONE)			
SEMI-CONDUCTORS					
D101	5331851	DIODE 1N4148			
D151	5331851	DIODE 1N4148			
D201-202	5331902	DIODE 1S188(FM)			
D203	5331851	DIODE 1N4148			
D501	5331902	DIODE 1S188(FM)			
D601-604	5331992	DIODE 1N4001			
IC501	5355391	IC AN7111			
Q101-102	5322551	TRANSISTOR HIT9016G			
Q151	5322551	TRANSISTOR HIT9016G			
Q201-202	5322572	TRANSISTOR HIT90111			
Q401	5322581	TRANSISTOR HIT9014C			
Z0201	5331016	ZENER DIODE HZ5B1			
TRANSFORMERS					
T101	5140071	FM IF			
T151	5130127	AM IF			
T201	5148111	FM DISCRIMINATOR			
T202	5148112	FM DISCRIMINATOR			
T203	5130124	AM IF			
T204	5130121	AM IF			
△ T601	5213251	POWER			

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
18	7350831	TAKE UP ROLLER ARM ASSEMBLY	57	6334692	HANDLE
19	6542981	SPRING	58	6109407	FRONT CASE ASSEMBLY
20	7571751	COLLAR	59	6772912	TUNING SHAFT
21	6774511	FLYWHEEL ASSEMBLY	60	6398862	POINTER
22	6757372	FLYWHEEL PLATE	61	6422892	PULLEY
23	6521051	SPRING	62	7450344	BATTERY TERMINAL
24	7350441	FLYWHEEL HOLDER	63	6324112	SPRING
25	7787431	NYLON WASHER	64	5405472	SPEAKER-10CM
26	7788442	NYLON WASHER	65	7781134	BINDING SCREW
27	6774361	SUPPLY REEL ASSEMBLY	66	5421501	BUILT IN MICROPHONE
28	6521061	BACK TENSION SPRING	67	6570221	MICROPHONE HOLDER
29	6774501	TAKE UP REEL ASSEMBLY	68	7781132	BT SCREW
30	6521071	BACK TENSION SPRING	69	6094063	CASSETTE LID
31	7788443	WASHER	70	6292913	FUNCTION KNOB
32	6428095	DC MOTOR ASSEMBLY	71	6109387	REAR CASE ASSEMBLY
33	6590791	MOTOR RUBBER	72	6174352	BATTERY LID ASSEMBLY
34	7547561	SPECIAL SCREW	73	5752701	ROD ANTENNA
35	6355711	BELT	74	6520621	SPRING
36	7350821	EJECT LEVER ASSEMBLY	75	6056765	CASSETTE BUTTON
37	6543031	SPRING	76	6056766	CASSETTE BUTTON (REC)
38	6774351	PUSH BUTTON BASE	77	7349521	RECORD PLATE
39	7350431	RECORD BUTTON LEVER	78	0741304	BIND SCREW-2.6MMDX4MM
40	6548471	SPRING	79	8815113	LOCK WASHER-2.6MMD
41	7350421	PLAY BUTTON LEVER			
42	6521041	SPRING			
43	7350411	REWIND BUTTON LEVER			
44	6548461	SPRING			
45	7350401	FF BUTTON LEVER			
46	6548461	SPRING			
47	7350391	STOP BUTTON LEVER			
48	6548471	SPRING			
49	7350591	PUSH BUTTON ACTUATOR ASSEMBLY			
50	6774341	ACTUATOR SHAFT (B)			
51	6774281	ACTUATOR SHAFT			
52	6543001	SPRING			
MISCELLANEOUS					
53	6292903	KNOB-33MMD (TUNING)			
54	6520931	SPRING			
55	6284133	KNOB-18MMD (VOLUME, TONE)			
56	7781146	BT SCREW-3MMDX20MM			

	Type of head					
	P	Pan head screw		BT	Binding head tapping screw	
	F	Flat countersunk head screw		BL	Bolt	
	B	Binding head screw		W	Washer	
	T	Round head tapping screw		E	"E" ring	
	Length (L mm)			 		
Diameter (D mm)						

When ordering hardware excluding stated on these lists, be sure to make your orders with type and size.



HITACHI SALES EUROPA GmbH

2 Hamburg 54, Kleine Bahnstraße 8, West Germany
Tel. 850 60 71-75

HITACHI SALES (U.K.) Ltd.

Hitachi House, Station Road, Hayes, Middlesex UB3 4DR, England
Tel. 01-848-8787

HITACHI SALES SCANDINAVIA AB

Rissneleden 8, Sundbyberg, Box 7138, S-172-07 Sundbyberg 7, Sweden
Tel. 08-98 52 80

HITACHI SALES NORWAY A/S

Oerebekk 1620 Gressvik P.O. Box 46 N-1601 Fredrikstad, Norway
Tel. 032-28050

SUOMEN HITACHI OY

Box 151, SF-15100 Lahti 10, Finland
Tel. Lahti 44 241

HITACHI SALES A/S

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Tel. 064-513621

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9, Boulevard Ney 75018, Paris, France
Tel. 201-25-00

HITACHI SALES WARENHANDELS GMBH

A-1180/Wien, Kreuzgasse 27
Tel. (0043222) 439367/8